

MAJOR IN DATA SCIENCE, GENERAL CONCENTRATION

Requirements Effective Fall 2026

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
CS 150B	Culture and Coding: Python	3B	3
CS 164	CS1–Computational Thinking with Java		4
DSCI 100	First Year Seminar in Data Science		1
DSCI 369	Linear Algebra for Data Science		4
MATH 156 ¹	Mathematics for Computational Science I (GT-MA1)	1B	4
STAT 158	Introduction to R Programming		1
STAT 315	Intro to Theory and Practice of Statistics		3
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)		1C	3
Biological and Physical Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)		3A	4
Total Credits			30

Sophomore

CS 165	CS2–Data Structures		4
CS 201/PHIL 201	Ethical Computing Systems	3B	3
CS 220	Discrete Structures		4
DSCI 235	Data Wrangling		2
MATH 151	Mathematical Algorithms in Matlab I		1
MATH 256 ¹	Mathematics for Computational Science II		4
STAT 341	Statistical Data Analysis I		3
STAT 342	Statistical Data Analysis II		3
Biological and Physical Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#biological-physical-sciences)		3A	3
Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)		3C	3
Total Credits			30

Junior

DSCI 320/MATH 320	Optimization Methods in Data Science		3
DSCI 335	Inferential Reasoning in Data Analysis		3
DSCI 336	Data Graphics and Visualization		1
Select one course from the following:			3
CO 300	Writing Arguments (GT-CO3)	2	
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	2	
CO 302	Writing in Digital Environments (GT-CO3)	2	
JTC 300	Strategic Writing and Communication (GT-CO3)	2	
Data Science Electives ²			6
Minor or Second Major ³			12
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Total Credits			31

Senior

DSCI 445	Statistical Machine Learning	4B	3
DSCI 478	Capstone Group Project in Data Science	4A,4C	4
Data Science Electives ²			6
Minor or Second Major ³			9
Electives ⁴			7
Total Credits			29
Program Total Credits:			120

Data Science Electives List ²

Code	Title	AUCC	Credits
Select a minimum of 12 total credits from the list below:			
CS 214	Software Development		3
CS 250	Computer Systems Foundations		4
CS 270	Computer Organization		4
CS 314	Software Engineering		3
CS 320	Algorithms--Theory and Practice		3
CS 370	Operating Systems		3
CS 435	Introduction to Big Data		4
CS 440	Introduction to Artificial Intelligence		4
CT 301	C++ Fundamentals		2
DSCI 473	Introduction to Geometric Data Analysis		2
DSCI 475	Topological Data Analysis		2
ECON 202	Principles of Microeconomics (GT-SS1)	3C	3
ECON 204	Principles of Macroeconomics (GT-SS1)	3C	3
ECON 304	Intermediate Macroeconomics		3
ECON 306	Intermediate Microeconomics		3
ECON 435	Intermediate Econometrics		3
MATH 301	Introduction to Combinatorial Theory		3
MATH 317	Advanced Calculus of One Variable		3
MATH 331	Introduction to Mathematical Modeling		3
MATH 332	Partial Differential Equations		3
MATH 345	Differential Equations		4
MATH 360	Mathematics of Information Security		3
MATH 450	Introduction to Numerical Analysis I		3
MATH 451	Introduction to Numerical Analysis II		3
STAT 305	Sampling Techniques		3
STAT 331	Intermediate Applied Statistical Methods		3
STAT 351	Sports Statistics and Analytics I		3
STAT 400	Statistical Computing		3
STAT 420	Probability and Mathematical Statistics I		3
STAT 421	Introduction to Stochastic Processes		3
STAT 430	Probability and Mathematical Statistics II		3

STAT 440	Bayesian Data Analysis	3
STAT 451	Sports Statistics and Analytics II	3
STAT 460	Applied Multivariate Analysis	3
STAT 472	Statistical Research—Design, Data, Methods	3

¹ The calculus requirement for the major may alternatively be satisfied by completion of MATH 160, MATH 161, and MATH 261; or by completion of MATH 155 and MATH 255.

² A minimum of 12 total credits must be selected from the Data Science Electives. Courses used to satisfy the requirement of the minor/second major/interdisciplinary minor may not double-count towards the Data Science Electives requirement.

³ Students must complete a minor, second major, or interdisciplinary minor, excluding the following: Minor in Computer Science, Minor in Data Science, Minor in Economics, Minor in Statistics, Minor in Applied Statistics, Minor in Mathematics, Minor in Bioinformatics.

⁴ Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).